SECURITY FOR ALL-OPTICAL NETWORKS

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Due to the drive for ever-increasing bandwidth, transparent, all-optical networks are beginning to emerge as a future network technology. Since the architecture and technologies are just starting to become a reality, now is the time to include security and survivability. Security and survivability include employing traditional security services and security-aware network management, and also incorporating survivable network elements in the infrastructure to provide defensive information warfare capabilities. To include security and survivability, network architecture studies are needed to understand vulnerabilities and incorporate countermeasures, and to incorporate security features in network management. As optical technologies are used to create the components for all-optical networks, survivability can be incorporated and security components like optical encryptors can be developed. Different types of transparant all-optical networks will be discussed with some security implications for each included.